THE EDUCATIONAL WEEKLY.

VOLUME IX. CHICAGO, MAY 5, 1881. NUMBER 201.

THE EDUCATIONAL WEEKLY

ESTABLISHED IN DECEMBER, 1876, BY THE UNION OF

THE ILLINOIS SCHOOLMASTER, ILLINOIS. THE MICHIGAN TEACHER, MICHIGAN.
THE NEBRASKA TEACHER, NEBRASKA. HOME AND SCHOOL, KENTUCKY.
THE SCHOOL REPORTER, INDIANA. THE SCHOOL, MICHIGAN.
THE SCHOOL BULLETIN AND N. W. JOURNAL OF EDUCATION, WISCONSIN.

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MONTHLY—50 CENTS—YEARLY.

Advertising rates given on application.
Remittances made payable and addressed to the publisher.

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24 LAKESIDE BUILDING, CHICAGO, ILL.

ENTERED AT CHICAGO POST OFFICE AS SECOND-CLASS MATTER.

A subscriber writes THE WEEKLY, from Oshkosh, as here quoted:

"I have noticed of late, in your correspondence from Milwaukee certain things against the State Teachers' Association. I have attended the meetings of that body many times, and do not remember seeing either the High School men of that city, or the principals of their ward schools there, with one or two exceptions. I say nothing now of their insinuations, but if they never go, and do as all do who go, cast their votes on all elections of officers, and appointments of committees, including executive committee, and thus exercise as much influence as do those who expend their money, and give their time once or twice a year in order to attend these meetings, why should they find fault with the few who do attend. Book agents are there, of course, from all the large publishing houses, so they are at all the large meetings of teachers, to show their books; but I never knew of any advertisements of any of them, coming out by authority of the association. And, as for the "old-womanish" character of the men who go, how can those who never make an appearance there know anything about it. Let them go and take part in the work, and then if they find fault, the others may try to improve."

Let us hear what "the reformers," of whom the Milwaukee correspondent recently quoted, wrote, have to say in reply.

It seems to us THE WEEKLY might be made a medium of inquiry, through which the teachers of Wisconsin may ascertain what is the matter, and the executive committee, having this information before them, may be able to harmonize all discordant elements and render the next meeting of the State Teachers' Association the best attended and most popular and useful one held for many a year.

The *Inter Ocean* refers to the same item in one of our recent issues, which has stirred up our Oskosh friend, and this is what it says on the threatened "anabasis" of Milwaukee teachers, to capture the next State Teachers' Association:

"If the Milwaukee folks think that the State Teachers' Association has got in the hands of a ring, by all means let them go up to the next annual meeting and take the management of the association into their own hands. If the ungraded school-teachers think that the city and village teachers have taken too large a share of the offices and literary honors, by all means let them turn out *en masse* and show their strength. For our part we shall be glad to take notes of any such lively State Teachers' Association as that would give us. And we know several members of "the ring" who would be over happy to see such a revival. It does look as if the same handful of men and women (but particularly men) had climbed into the offices and into the programme rather frequently. It is so in other State associations. But who is to blame? Manifestly the teachers who seldom or never manifest themselves at annual meetings. If the many leave matters to the few there is nothing left for the few but to keep the association alive with their own breath, or give it a decent burial and be done with it. The association will not die, however, so long as the so-called "ring" can keep it alive. Go up, Milwaukee, and give these old stalwarts a rest."

There is a charming book, a standard work on good behavior, brotherly love, and all that, which contains a heap of excellent advice adapted to such conditions of o'er wrought fraternal emotions as move the hearts of some of the Wisconsin brotherhood just now—and we commend it to them for careful perusal. See *Cruden's Concordance* under the words "brethren," and "unity."

Last week we took occasion to characterize the action of the Chicago Board of Education, in calling upon the several publishers of text-books to send in bids stating terms upon which they would supply books to the public schools, and the treatment of the representatives of these houses by certain members of the text-book committee, as a farce. If any of our readers harbored a suspicion that we were guilty of indulging in "sarcastic abuse" of these honorable gentlemen, as the Chicago *Tribune* expresses it, let them read the cool, unblushing confessions contained in the following report of an interview with Inspector Dunne, obtained by a *Tribune* reporter, and be convinced that our characterization of this whole business as a farce was in no degree undeserved. Quoth the *Tribune* of last Saturday.

"A reporter asked Inspector Dunne yesterday what he had to say about this:

'There is a rule of the Board,' said he, 'which requires the advertising for text-books every year, but it doesn't necessarily follow that we want them. The policy of the committee is to make as few changes as possible in order to save the expense to parents. We know beforehand substantially the prices of all the books that will be offered. There is so much competition that they are furnished at even a less price than jobbers can get them from the publishers. The committee are bored to death by book-agents. We recommend two or three changes, because we believe we have found better books than those in use. The Superintendent suggested the substitution. Our report will not be acted on for several weeks; all the bids are printed in the proceedings of the board, and any inspector has the right to move to amend our report. We have not treated any one unfairly."

This is the farce of which we wrote, told in fewer words than we used, and with a good deal more effrontery than we ventured to expose. Publishers are mocked with invitations they are not expected to accept, and, as dramatized by THE WEEKLY in the article above referred to (where we sketched an actual incident), the publisher, when one treats the invitation as a sincere one and calls upon our committee-man (who assures us that the commit-

tee "have not treated any one unfairly)," he is mortified to find that he is the victim of a practical joke, while his competitor, whose wares were already selected before the call upon himself was made, has been spared both mortification and any waste of time answering an invitation not extended in legal, commercial, or civil good faith.

If the publishers were the only victims this would *not* be "fair" treatment, Mr. Dunne, whatever you may think of it; but there are other victims, as we may show, in another number.

Miss Elizabeth Surr, in the *Nineteenth Century*, discusses practically "The Child-Criminal," as he appears upon the surface of English Society, and the inadequacy of the means adopted by the State for the care and reformation of this class. They are now sent to the prison, or the work-house, or they are whipped, either as a distinct punishment, or in addition to other punishment. These methods have not proved satisfactory, and Miss Surr suggests that "homes, sufficiently large for the reception of fifty or sixty children (of whom none should be above ten years of age when admitted), managed by well-educated and competent women, are real necessities for our destitute and criminal boys and girls," the officers of whom should be State employes. On the selection of a suitable woman to fill the responsible position of matron, the prosperity of the home must wholly depend. She says:

"There are good women enough to be found among us, sufficiently courageous, able and enthusiastic to undertake cheerfully and perform successfully the onerous duty which, as home-mothers, would devolve upon them; women of tact, fertility of resource, organizing talent, unlimited patience and self-devotion; women diligent without fussiness, large-hearted without laxity; calm women, seldom dull; firm women, not often stern; women who can be strict disciplinarians, without inspiring their charge with slavish fear; loving, motherly women, who, while careful to retain their authority, know how to win the full confidence of their foster-children, develop their kindly affections (cruelly stunted in growth), and kindle in them noble ambitions and aspirations; vigilant women, observing everything, yet at times seeming to see nothing; pious women, whose daily conduct bears the quick, incessant watchfulness of childish glances that detect no inconsistency. Women such as we describe (and such women there are) would be centers of influence and affection in homes for criminal and neglected children whose power for good it were impossible to estimate."

Miss Surr thinks it quite indispensable to the success of any system of dealing with the criminal children of England that they shall be placed under feminine supervision.

Comparisons of the school advantages of different States of our own country are frequently made by editors and platform speakers in very loose, general terms, and positively erroneous statements are not uncommon. Many writers and speakers, not content with blundering over the school statistics of this country, venture across the seas for comparisons, and without condescending to furnish definite figures, expatiate in a very learned way upon the enlightened or degraded conditions of the schools of this and that land. Teachers, at least, should have some definite outline of facts, to guard them against accepting these editorial or declamatory vaporings, and so we have taken the trouble to compile, from various official sources of information, the following tables, going to show the number of schools, school population, and total number of inhabitants of certain States of the Union, and of the most important European States.

The number of schools and the school population as given in this table, are compiled from the latest report of the Bureau of Education, which is based on the State reports for 1878. The total population is from the census of 1880. Of course the number of schools and the school population have somewhat increased since the school statistics of 1878 were returned.

	No. of Schools.	School Population.	Population in 1880.
EASTERN STATES.			
Maine	4,215*	214,797	648,945
New Hampshire	2,560	73,785	347,784
Vermont	2,545	92,831	332,286
Massachusetts	5,730	297,202	1,783,086
Connecticut	1,647	138,407	622,686
Rhode Island	801	53,316	276,528
MIDDLE STATES.			
New York	11,824*	1,615,256	5,083,173
Pennsylvania	18,067	1,200,000	4,282,735
New Jersey	1,551*	322,166	1,130,892
Delaware	469*	35,649	146,654
WESTERN STATES.			
Ohio	11,979*	1,027,248	3,197,194
Indiana	9,545*	699,153	1,978,858
Illinois	12,324	1,022,421	3,078,636
Michigan	6,094	476,806	1,634,096
Iowa	10,694	575,474	1,624,463
Wisconsin	5,561*	478,692	1,315,386
Minnesota	3,280*	271,428	780,807
Missouri	8,266*	688,248	2,169,091
Kansas	4,584	266,575	995,335
Nebraska	2,690	104,030	452,432
SOUTHERN STATES.			
Maryland	1,989	276,120	935,139
Virginia	4,545	483,701	1,512,202
West Virginia	3,501	209,533	618,193
North Carolina	5,149	422,380	1,400,000
South Carolina	2,922	228,128	995,706
Georgia	5,361	433,444	1,538,983
Alabama	4,796	370,245	1,262,344
Kentucky	6,456†	514,808	1,648,599
Tennessee	5,346	448,917	1,542,468
Arkansas		216,475	802,564
Mississippi	480*	346,613	1,131,899
Louisiana	1,541	274,406	940,263
Florida	992	72,985	266,566
Texas	4,633	194,353	1,597,509
PACIFIC STATES.			
California	2,578	205,475	864,686
Oregon	790	53,462	174,767

Below we give the corresponding statistics of certain countries in Europe.

Countries.	No. of Schools.	No. of Pupils.	Population.
Austria	15,166	2,134,684	21,565,435
Hungary	15,486	1,559,636	15,564,526
Bavaria	7,184	841,304	5,022,390
Belgium	5,729	687,749	5,476,668
Denmark	2,940	231,953	1,940,000
England and Wales	17,166	3,710,883	25,480,161
France	71,547	4,716,935	36,905,788
Ireland	7,522	1,031,995	5,363,590
Italy	47,411	1,931,617	27,769,475
Netherlands	3,813	486,737	3,866,456
Portugal	4,510	198,131	4,048,551
Prussia	34,988	4,007,776	25,742,404
Roumania	2,319	108,824	5,290,000
Russia	25,077	1,036,851	85,426,142
Saxony	2,134	451,324	2,760,586
Scotland	3,003	508,452	3,661,291
Spain	28,117	1,410,476	16,625,860
Sweden	8,770	598,354	4,568,901
Switzerland	5,088	411,754	2,813,824

Japan, under the great civilizing revolution progressing there, makes a better exhibit of zeal in educational matters than many of the American States, and a much better exhibit than certain States of Europe. According to the latest official data received at the Bureau of Education, the number of schools last year was 25,459, and the number of pupils was 2,162,962, out of a total population, according to MacMillan & Co.'s year book, of 32,794,897.

The pitiable condition of several American States and foreign countries as regards their provisions for public instruction could not be more sententiously and definitely set forth than in these truth-telling figures.

We regret that the number of school-rooms and the number of teachers in the several European countries is not furnished, rather than the numbers of schools, as this would give us a better basis of comparison. A "school" may contain several hundred pupils, or not more than ten to fifty; it may engage but one teacher, or a full score or more. While Austria reports but 15,166 schools, it is known to employ more than 35,000 teachers. While Illinois reported but 12,324 public schools it reported 22,292 teachers.

* In States marked with asterisks we give the number of schoolhouses. In other cases the number of schools reported.
† Number of school districts.

The articles which appear in our columns from time to time under the *nom de plume* of Maude Mirror are written by a late member of the Chicago High School, who, as we have good reason to know, practices what she recommends. She writes as "one of us girls" to the rest of us girls. She has proved the sweetness of living up to both of her precepts in this week's article on "Dependence or Independence," the one to live at home, doing cheerfully whatever duty invites her to do, without sighing for the independence (?) of living by outside wage earning, and the other, to go forth, when not needed all the time at home and earn a salary, rather than sit down in listless idleness, enjoying the earnings of father and brothers, however welcome she would be to those earnings. Both the sentiments and the style are unstilted, unaffected, the natural utterances of a sensible girl to girls who should learn to be as sensible as herself.

A LESSON FROM THE SCHOOL OF ATHENS.

ELLA F. MOSBY, MONTREAL, VIRGINIA.

I know nowhere a more beautiful vision of true education, than Raphael has given us in his noble school of Athens. The teacher and pupil are wholly unconscious of themselves, and absorbed in the knowledge which both are seeking on different planes. Every individual, every group has attention and gaze directed to some other object, the philosopher to those whom he instructs, the pupil to the master who teaches him. Even the servitors bearing scrolls run swiftly, as if intent on their mission of service. It is this entire absence of self-consciousness, which imparts to the attitudes and figures in all of Raphael's paintings, their characteristic refinment and grace, for nothing is so awkward and vulgar as anxiety about one's self. From the pure lineaments of such a type of face as this artist loves continually to trace, such debaring influences have been expelled by the ennobling presence of a higher thought. Perhaps no picture of Raphael's more exquisitely illustrates the unconsciousness which characterizes his genius, than his painting of St. Margaret, in the gallery of the Louvre. The innocent, girlish figure advances with the palm leaves through the dark valleys of the shadows, with her eyes so fearlessly uplifted, that she never *sees* the great dragon that writhes and hisses at her feet. Evil cannot harm her, for she is wholly unconscious of its baleful presence, and untouched by its venom. This forgetfulness of self, of one's own skill and progress, or personal defects, is essential for true growth in knowledge, in mental as well as spiritual graces. The foremost figure of the philosopher, seated on the steps, is a fine example of thorough absorption in study; with earnest brows and thoughtful look he grasps the problem which he seeks to solve, no longer aware of himself or the crowd that passes by. All art and science, all intellectual attainments, fail of their first great end, if they do not raise us above our meagre personal life.

There always comes increased earnestness of purpose when the thought of self is put aside, greater persistency of effort, a state more openly receptive of truth. A new vitality pervades the whole mind, and keeps it strong and unswerving. In the Athenian school not only the listener's face speaks an earnest attention—his uplifted eyes, thoughtful brow, and half-parted lips—but the poise of the head, the gesture, seemingly just ceased, of the eager hands. If the faces could be hidden from our view, we would understand their meaning from the expression of these hands—the upraised hands that seem to instruct, to declare—the outstretched fingers that argue, demonstrate, refute—the open palms that appear to listen, receive, assent—and the folded and relaxed hands of deep reverie. The gestures look as if they had been made at that very instant, and had been fixed in one sudden pause of concentrated attention. A living earnestness pervades the whole crowd, for no artist more fully appreciated than Raphael the power of the ruling emotion which dominates every gesture, pose, and lineament, every trick of speech and unconscious habit, leaving on the whole person its image and likeness. The combination of muscular and physical training with mental growth aims at such a harmony, that an acute, strong, and serene mind should not be impeded by action with a weak and untrained body. A liberal understanding and broad culture should not be linked with a feeble, feverish physical frame, but a sound mind in a sound body should develop in growth and unison. A steady progress towards the goal should be possible for both soul and body, so that both natures—spiritual and corporeal—might be one in power.

At a glance you may perceive a certain balance and symmetry in this group of teachers and disciples. There are many philosophers, but no confusion or wrangling; all is properly subordinated, and the various groups surround and rise upward to the two central figures—Plato and Aristotle—so long the leaders of the intellectual world. But Plato, the spiritual teacher, who taught us that "Truth is the body of God; and Light, His shadow," and whose thrilling question—"Is there anything better in a State than that both women and men be rendered the very best? There is not."—pierces still to the core of our society, arraigning its customs and laws. Plato stands still the highest of all, the central mind of Greek philosophy and wisdom. This subordination and orderly arrangement of groups, and their rising towards one common apex and centre, are usual in the early religious school of Art, and indicates the spirit of reverence. One must follow faithfully before one can be trusted to lead bravely. The principle of reverence to wise teachers should grow at least into a higher reverence for the truth itself and more implicit obedience to its guidance. Human authority rightly gives way to the impersonal and invisible

law of principle, and this is reached not by revolt, but respect. In a storm-beaten and turbulent atmosphere no flowers unfold or fruits ripen, or singing birds build their nests—all is bare and desolate.

True culture is never narrow or exclusive; it embraces all variety of life, and therefore in this Greek school there are young and old, the infant's chubby face, and the rugged features of those who have known struggle and labor, the *insouciant* courtesy and martial figure of Alcibiades, the strong virtue of Socrates, the dreamy gaze of the Oriental, the quick, perceptive glance of the artist himself, the noble feminine face—for knowledge needs the free range and play of womanly sympathy and intuition—with something however of loneliness in its beauty, of a noble melancholy in its aspirations. There is a wonderful variety of character and situation here modulated into rich harmony by the key-note, the desire of truth, all for a while gathered into brotherhood by the common goal to which they press.

We have known the feverish hurry of our superficial learning, the anxiety of competition, the fear of being outstripped in the race, the weariness of mere book knowledge; and mark with surprise the calm and perfect repose that underlie the earnestness with which knowledge is here imparted and received. Without undue haste, but without pause, these seem to advance, as a tree puts forth, morning after morning, new buds and leafy sprays of tossing, quivering foliage to make it a form of beauty and delight. The Greeks loved knowledge and received it with gladness, regarding it as a true end of education to learn to enjoy and admire the noble and fair. They learned in great measure through the sympathetic medium of human intercourse, and their schools were those of the garden and grove, as well as the academy. The open air and joyous outdoor life, the sky and the swift morning winds and floating sails at sea were as a background to truth, spoken by vibrating human voices. The youths who listened had the great works of art ever before their eyes, their beautiful fatherland under their feet, stimulating to grander achievements; and their education was the high joy of learning new powers and new pleasures. Not memory alone, but every faculty—perception, reason, eloquence, bodily skill and strength, and grace—were roused into free play. Have we not missed much in forgetting repose and enjoyment? The mind needs sustenance and delight, or it cannot labor long. There is nothing in art more beautiful than the face of a Greek youth, and only the free glad culture of the Greek intellect can restore its noble type of beauty.

Two inattentive faces may alone be seen at the Athenian school. One is a little child, brought in infancy to have the counsel of the wise about his early years, because these are so plastic to all good or evil impressions, and the other is Raphael himself. The child carelessly turns aside from the philosophers with serene unconsciousness, to look out of the picture at you—and the artist, having taken this great vision into his head, and given it to you with all grace and richness of color—true culture, unselfish, earnest, reverent, sympathetic, joyous—turns away from all to you, the beholder, as if asking how will it touch and move you—will it lead you to follow where it points the way? Not the grandest, but the most thoroughly human of all artists, he paints no picture of himself which does not look from the canvass straight into your face, appealing for a sympathy and love which few, believe me, ever saw him without giving in full measure. His tender eyes and sympathetic mouth show hat the most refined cultures of art kept him not one whit aloof or apart from other men, or took from him the sense of their nearness and brotherhood. There may be outer polish, but there is no vital growth within if the spirit of human interest is wanting. Love and knowledge must grow together, for "love is ever the beginning of wisdom, as fire is of light."

As for the painting and the truth it tells, we may say of it as the grand old master, Beethoven, said of his own music, "It came from the heart, may it go to the heart."

REPORT OF THE ASYLUM FOR FEEBLE-MINDED CHILDREN.

We have received the Eighth Biennial Report of the Illinois Asylum for Feeble-minded Children, at Lincoln, covering the record of the institution for the years 1879 and 1880. From its pages we take the following facts concerning this noble work in the line of education.

The school had, in 1879, an average attendance of 224; in 1880, of 273. Five of the pupils died in 1879, three in 1880. The average age of the pupils in the asylum these two years has been a little over fourteen years. Fifty-four of the pupils have been in the school over five years, and of these 33 have been educated up to a really excellent degree of capability.

The institution is not meant to be a hospital for diseased children, nor an insane asylum, consequently large numbers are refused admission yearly, because subject to these afflictions.

The aim of the institution is to take in only those who seem to be to a certain degree teachable, and who have no incurable disease of body or mind. The utmost care is then taken to develop in them good habits, and to strengthen, as far as possible, the physical system, as a help to the development of the mental faculties. The children are constantly under the care of attendants, night and day; and these endeavor to teach them neatness in personal habits, and decorum and propriety of behavior. They are classified in the dining-room and carefully watched to prevent or break up the slovenly and greedy habits of eating to which this class of children are so prone.

From 9:30 to 3:30, with intermissions amounting to two hours, the pupils are all kept in the school-rooms, where effort is made to teach them all they are capable of learning. For the purpose of instruction they are divided into ten classes, the first being composed of those possessing the highest capabilities. In the first three classes the pupils are so graded that exercises and instruction can be adapted to each class, but in the classes below it has been found necessary to adapt instruction to each individual.

Reading is taught at first by the word method and the blackboard; afterward the children are promoted to readers, of which the first, second, third, and fourth are now used in the classes. In geography, teaching has been done generally by outline maps, and much interest has been aroused in the study. In arithmetic, they are taught notation and the four fundamental rules. In writing, and drawing, they are instructed daily, and it is quite remarkable what proficiency they often acquire, especially in the latter. Besides these studies there are classes in vocal music, the children are all trained in calisthenics, and the girls are taught plain sewing and embroidery, while the boys are trained in the skillful use of the scroll-saw. Of course, this instruction can only be given to the more advanced classes; below the fourth class the children are exercised in articulation; in simple object lessons on form, color and numbers; in marching to music; in

physical exercises; in learning easy tunes; and in obeying simple, direct commands.

Out of school hours the girls are trained in household duties, and the boys in the work of the garden, and in grading and beautifying the grounds of the building. Much attention is given to the training of the moral sense, so often sadly deficient in children of this character. The children are taught the simple rules of right doing, to respect others' property, to be cleanly and polite in language, and to be obedient and polite to their superiors. Devotional exercises are held every morning, and on the Sabbath two hours are devoted to religious instruction.

Teachers accustomed only to deal with the keen, bright intellects of healthy, well-developed children, cannot in the least appreciate the patience, the utter unselfishness, the kindly philanthropy, that are needed to deal with this class of unfortunates. So much the more should they be honored for the noble work they are doing in saving from wreck these sadly clouded lives. Eternity may measure the value of their labor; time never can.

BIMETALISM.

C. W. TUFTS, A.M., SHEBOYGAN, WIS.

[We publish this article of Mr. Tuft's on the subject of bimetalism as a fair example of the reasoning of the monometalists, to whom, we are happy to say, we do not belong. We agree with Mr. Tufts that this is an interesting subject, and THE WEEKLY is perfectly willing to have it discussed in its columns. It is one of the living issues of the day. We cannot accept certain assertions of Prof. Sumner and his disciples as historical facts. Take one example: At the close of his fourth paragraph below, Mr. Tufts says that through all the fluctuations in the value of gold for the last 2,000 years, "in every case the purchasing power of the gold has been very nearly the same, proving that in the main it was the silver that varied and not the gold." Has Mr. Tufts lost sight of the very appreciable depreciation of the market value of gold bullion which followed the marvelous product of the gold mines of California and Australia about a quarter of a century back? Again, for several years after the opening of Japan, by Commodore Perry, gold was bought by foreigners in Japanese ports at the rate of one ounce of gold for four of silver, and shipped to Europe and America to be recoined at a profit to the merchant of nearly 400 per cent. Of course the Japanese discovered in time the necessity of legislating upon the currency. Gold rose very suddenly, so that within a few months an ounce of gold bought nearly four times what it had formerly done, while silver bought not more nor less than before. At Shanghai, China, silver is at a premium over gold, reckoned upon the face value of each. It was so in India, despite all the influences of Great Britain to the contrary, until special legislation was resorted to to force the gold upon the country. These statements we know to be correct from personal experience as well as from historical records. Gold and silver have both fluctuated in purchasing power at different periods of history for various reasons, not the least of which has been unwise legislation designed to appreciate the value of the one at the cost of the holders of the other.—EDITOR.]

Just at the present time this subject is of the utmost importance to us as teachers. The more inquiring of our pupils, and especially those in the political economy classes, are continually coming to us with questions, which they have been led to ask by reading newspaper items in regard to the International Monetary Conference now in session.

The results of a careful consideration of this subject at the time of the previous conference held in 1878, may be of use to readers of THE WEEKLY.

At the present time each nation fixes its own standard of value regardless of others, and nations with a total population of some over 100,000,000, now have a single standard of gold. About 200,000,000 have the double standard of gold and silver, while over 700,000,000 have silver alone. The object of the monetary conference is to unite all civilized nations in a common double-standard system, with a fixed ratio between gold and silver.

The first argument of those who favor the system is the "compensatory theory," or that one metal will compensate for the fluctuations of the other, and that the real standard of value will be an almost invariable point between the two. The fallacy of this theory is this: Two metals can not both be the standard at once, unless the ratio fixed between them be exactly true at the time. The debtor will always pay in the metal which is rated cheapest, and that metal becomes for the time the standard to the exclusion of the other, hence the double standard is in fact but an alternating standard. When a farmer wishes to break a colt he hitches it up with an old and steady horse. His team, as thus arranged, may be steadier than if he drove the colt alone, but the old horse alone would be still better. Just so it is with the double standard. The colt is the silver and the old horse is the gold. The quotations from the metal market for the last fifty years shows that the fluctuations in the value of gold have been far less in frequency and extent than those in the value of silver. And in the last 2,000 years the ratio between the two metals has varied all the way from one to four to one to twenty-two. In every case the purchasing power of the gold has been very nearly the same, proving that, in the main, it was the silver that varied and not the gold.

Some favor double standard because, as they say, there is not enough gold in the world to supply the principal nations with what money they need. This may be true, but many nations now use silver as well as gold for money, although gold only is their standard. It is not necessary to adopt a metal as a standard in order to use it as money. In this country we use silver, copper and nickel, though, practically, gold alone is our standard.

These are the leading arguments for the double standard, which, Prof. Sumner says, is a project for uniting the debtor class of all nations in a corner on the falling metal. The results of such a system would be disastrous in the extreme. In the first place, the principal commercial nations only would be comprised in the Union. All the smaller and uncommercial nations, thus left outside the system, have a large share of the money of the world. In the case of the South American and Asiatic nations the most of this money is silver. Now, if the larger nations begin to coin silver, without limit, at a ratio of one to sixteen with gold, when the real ratio of values is one to eighteen, or more, it is perfectly evident that nearly all the silver in the world would flow to where it brought this exorbitant price and be coined into money. This would flood the money markets of the coining countries with silver and tend still further to decrease the value of that metal as compared with gold. Then, under the old law, that the poorer money always draws the better out, as our depreciated paper did gold and silver during the Rebellion, this depreciated silver would drive all he gold out of the larger nations and it would go to the smaller

nations to fill the gap made by the withdrawal of their silver. This would be a state of affairs exactly opposite to what is natural or reasonable. The larger nations would be compelled to carry on their extensive business transactions with silver, a form of money fitted only for small transactions, while the smaller nations, for their smaller transactions, would be flooded with gold, which is especially fitted for large transactions.

If it were possible to find a permanent ratio between these two metals, or to chain their values together by law, as some contend, the question would be far different. But the law of value is above all legislation, and supply and demand fix the values of gold and silver, as of all other commodities. Alexander Hamilton struck the average of Spanish dollars and fixed the ratio between gold and silver in 1792 at one to fifteen. This was wrong, and, although we have changed our coinage several times since, at great expense, the legal ratio to-day is not as near correct as that of Hamilton nearly 100 years ago. And the ratio is likely to be no less variable for the future, while our Western silver mines are flooding the market with untold millions every year. Again, the result would be disastrous, financially. The principal nations would form a false market for silver, in which they would pay more for that metal than it was worth to them or anybody else. It would be the same as if they should advertise to all the world that they would pay two dollars per bushel for wheat when it was worth only one. They would be sure to get all the wheat, but they would lose a dollar on every bushel they bought. This loss would come out of the people in taxes. and in commodities which they sold for this depreciated silver. In short, the civilized man would change places with the savage. He would follow the example of the natives of Central Africa, who exchanged their priceless diamonds for glass beads, till they had plenty of glass beads but no more diamonds.

Finally, it would be especially disastrous to the laboring classes. It would defraud every creditor of an eighth of his just dues. To-day no debtor can pay a debt of any size except with Government notes or their equal in gold. If this system is adopted he can and will pay with silver dollars worth eighty-seven cents apiece. The price of all commodities measured in this depreciated money, would immediately rise, while wages would lag far behind and never attain so high a rate. Hence the laboring man would, all the time, be paying a comparatively high price for what he had to buy, and receiving a comparatively low price for his labor. This argument becomes of the utmost importance when we take into consideration the fact that the largest part of any nation is made up of those who are dependent on nominal wages, reckoned by the day, month or year.

So let us hope this conference will be as fruitless as the one of three years ago, or will decide on a single, universal standard of gold, and leave silver, what nearly all nations, except Russia, have already made it, on a level with nickel and copper, legal tender for but a small amount, a debased, subsidirary coin.

The will of the late James T. Fields, of Boston, leaves the sum of $29,000 to be apportioned among Boston schools and charities.

A new comet was discovered by Professor Lewis Swift, director of the Warner Observatory, Rochester, N. Y., on Sunday morning last, about 2 o'clock. It is in the constellation Andromeda. As this is the first comet discovery of the year, Prof. Swift secures the $200 prize offered last January by Mr. H. H. Warner for original discovery of comets. This, together with $500 which the same gentleman gave him for the discovery of the comet of 1880, is making astronomy profitable to the hard-working professor. The new comet is very bright, of fair size, and, although in nearly the same location, is evidently the expected comet of 1882.

DEPENDENCE OR INDEPENDENCE.

MAUD MIRROR.

There is a good deal of talk lately about being "independent." Many girls are desirous of being independent. They want to go to work in store or office that they may have money of their own, and not be "dependent." Now, in what does true independence consist? Is it a fact that the girls who are working and earning money for themselves are all "independent," and those who are not, are all "dependent?" I, for one, do not think so. Many a girl who stays at home, and, so far as the world outside knows, is entirely dependent on father, brother, or whoever it may be with whom she makes her home, actually does more real service and gives more comfort to those about her than the expense she is to them, twice over, could hire, or indeed, than could be hired for any price. Yet some of these very girls feel that they are dependent, and long to go into some active business. One reason for this is the neglect, in many cases, to supply a girl with any fixed amount of spending money. "So long as she has all her needs supplied and an occasional dollar for candy, etc., what more can she want?" many say. But she does want more. She wants her own money, and to know just what she is going to have, that she may regulate her expenses accordingly. In many cases a word would set this right, and why should girls be unwilling to accept support from those whose right and privilege it is to furnish it? While I would in no way discourage any girl from a desire to know some business or profession, which every girl ought to do, it seems to me there is a good deal of false independence among young ladies, not only in money matters but in other things. In their desire to manifest their independence of other people's opinions they rush to the other extreme and seem to think that the question, "Is it right?" once settled in the affirmative, they are not only to go ahead, but to go ahead utterly regardless of other people's opinions. The true rule is, to go ahead, pleasing all that you can, as far as you can consistently with duty. Approval is almost a necessity to very many natures, but if one is doing right he should never allow it to worry him if the approval of others does not always follow. We are all largely dependent upon one another, and all absolutely dependent upon the same heavenly Father for our very life, and why should we not be willing to accept from each other those little kindnesses that make that life more pleasant? Above all, why should any girl be unwilling to accept from the father, who loves to give, all the necessities of her daily life, repaying him by attention to those many little things that make home happy, and which no money can hire? On the other hand, where the father, though just as loving, has not the means easily to provide for all, or where, from any cause, there is need, or it seems best for a girl to earn for herself, let no false pride keep her back; but, with the spirit of true independence, let her go into any business she may choose, and steadily persevere in that. There are enough different lines of business open for women to admit of a choice. Any of these may have some disagreeable things, as well as many pleasant ones, connected with it; but persevere, *stick to it*, and do not be discouraged by what some one else may say. One of the troubles of girls in business life is, they are, as a class, more easily influenced and more desirous of change than boys, and I would say to all of them be independent enough to stand on your own opinion when you know it is right, and to change your course when you are convinced you are wrong. In short, de-

cide first what is best for yourself and those nearest to you; then go ahead, pleasing all that you can, but doing the duty that lies nearest you, because that is the right thing to do, without regard to the criticisms that may come. This seems to me the true spirit of independence.

ONE HELP TO SUCCESS IN TEACHING—TACT.

For the Weekly.

Perhaps more than any other class, the teacher needs tact! He can get along very well without any great degree of talent, but without tact success is well nigh, if not quite, impossible. One thing in the composition on "Tact versus Talent" struck me as particularly applicable to teachers. "Talent knows what to do, tact how to do it." Now, nearly every one knows that the first and most important thing for a teacher is to gain the whole and interested attention of his pupils and then to hold it, but with from twenty-five to fifty wide awake, active boys and girls, of as many dispositions and tastes, how to do this is a question much more difficult to determine, and certainly requires a large amount of tact and patience. One thing the teacher who really wishes to interest his scholars will do is to find out something of what they do outside of school. In what direction their tastes and habits lie, and the skillful teacher will use this knowledge to good advantage, in interesting their minds in their studies. A little incident lately read in a magazine illustrated this so well that I will venture to repeat it here. Tom was a boy that never could be much interested in his books; bright and quick enough but too full of fun and play to give attention to study. He thought history stupid and slow, and could not understand it. One day his teacher met him and remarked, "Well, Tom, is it you that is getting up this base ball club?" Tom was all attention in a minute. "Yes, sir, we are trying to. Have got six boys to join." "How are you going to do, each pay something to support the club?" "Yes, every boy has paid fifty cents, and we have a meeting to-night to make plans and rules." "Well, now, Tom, suppose the rest of the boys should take your fifty cents, but shut you out of the meeting, say they wanted your money, but you could have no say in making the rules." Tom was thoroughly aroused. For the first time, probably in his life, his teacher had his undivided and close attention. "Why, I would take my fifty cents out mighty quick." "Well, Tom, that was just what our forefathers said. The English wanted them to put in the fifty cents but would not let them come to the meetings or help make the rules, and our forefathers said that if they could not come to the meetings they would not pay the fifty cents, and the English were several years trying to make them pay it, and what I want you to find out is, whether they succeeded or not."

You may be sure Tom took a new interest in history from that day. And could not many teachers, by taking an interest in the sports and outside occupations of their pupils, win many of them to take more interest in their studies? Do not be afraid of lowering your dignity. If you see a crowd of girls busy talking, making plans for something, go and join them, find out what it is, and perhaps your wider experience can suggest some plan to help them, that will make them your fast friends. A good frolic with the scholars and a hearty laugh at recess, will do more to help you keep that pleasant face and gentle voice, so much insisted on in all teacher's journals, as a requisite of success, than any amount of planning and resolution. But be patient with yourself, even if the frown does come and the impatient words slip out, for teachers are but human and will make mistakes sometimes. Only do not be discouraged; keep on striving for that perfect self-control and only let your own failures influence you enough to make you sympathize more fully with those of the boys and girls with whom you have to deal. Then as you get more interested in all the things that interest them, the more you will have that love necessary for success in teaching, the easier it will be for you to be patient with their faults, and the more they will come to take an interest in the things you do, until, little by little, you will find you have discovered "how to do it," as well as "what to do."

READING FOR TEACHERS.

Many (should we say most?) of our teachers are the product of bookless homes, and few, who are widely and intimately acquainted with the rank and file of our profession, will incur the trouble of denying or seriously caviling at the statement that most of them have read but little, and read that little ill; and what they have read has much of it been of the Indian hair lifting, love-sick, or free booting styles of sundry periodicals, which we will not here advertise.

The reading of such trash by these teachers, it is not for us to rashly condemn. There exists a disposition to read, a hungering to read, and the home and neighborhood stock, poor as it may be, is the only food available to gratify this craving. Of the whole range of literature and of the best authors, they are profoundly ignorant, and have no literary acquaintances to consult confidentially, and even if they should learn what is desirable and covet it, they sink in despair in view of the prices out of all ratio to their annual surplus, after providing for the absolute necessities of decent appearances, for to their retreats the glad tidings of a cheap press have not penetrated; or if they have, the news seems too good to be reliable, and is disregarded.

Some teachers have parents of little education, but of much native ability and shrewdness, whose whole lives have been devoted to money getting; and their children have been educated to teach by the narrowest and nearest text-book channel that would return the investment with interest; for to them the schooling, either as pupil or as teacher, is a matter of pure dollars and cents, so that any additional expensé for literary culture or breadth of information, is regarded as so much thrown away. All candid thinkers must admit that this wide-spread lack of standard reading among teachers, is a source of weakness in the instruction of our children; as much supplementary and collateral information that should accompany the text-book matter, must be derived from general reading, and if so derived and given, will stimulate pupils to a like wide-spread range of books. Philanthropic efforts have been made, as witness the Chautauqua and other organizations, to inculcate the habit of systematic reading among the people generally.

The degree of success attained by these several societies depends less on converting previous non-readers to become readers, than on having a plan of operations and an organization by which to assist those hungering to read, and to stimulate others to persevere in whom the desire to read is feeble.—*Wisconsin Journal of Education.*

WHAT MAKES A GOOD SCHOOL?

A good course of study, a first-class school house, a good series of text-books, fine apparatus, a free library, are all well; but neither of them are essential to a good school. The true teacher carries the school in her carpet-bag, and establishes it wherever she "sets up her Ebenezer," whether in the heart of cultured Boston, in the pine woods of Carolina, or the log-cabin in the last new mining village of Arizona. If the schoolmaster is right, he can teach a good school without a school house, under a tree, wherever he can catch the children. He does not require numbers, for "where two or three are gathered in the name" of wisdom, there the Lord is present, as of old, teaching the little ones through his prophet, the good schoolmaster. If books are wanting, he can make them with pen and paper, as young George Washington did, or with a bit of coal on a shingle or the side of a barn. Apparatus he may construct out of the odds and ends that litter any log cabin, enough to teach physics and the beginning of nature-knowledge. And if no library is at hand, he has in his pocket that mightiest school-book of Christendom, the Bible, which has lifted up whole nations into the light of liberty, culture and a reverence for the laws of Almighty God. Louis Agassiz, John Dickinson, John Swett, Andrew Jackson Rickoff, set down in the swamps of Louisiana or perched in a pinnacle of the Sierra Nevada, could teach school with none of the helps and adjuncts accounted the very essentials of success by the disciples of the good old mechanical method of instruction. For this is the gospel of

the day for the school-room—*that the teacher with a full mind and a consecrated spirit and true pedagogic tact is the soul of every school.* Wherever he goes, all good things needful for his help are "added unto him." He can so inflame the souls of the little ones that they will wake up at his bidding and open their eyes upon the great world of nature and the grander world of human life, and learn how to study in the divine university what life may become to every awakened mind. He will conquer prejudice and break up the most stubborn soil of indifference, and fill the hearts even of ignorant parents with a longing for something better for their children. He will even baffle the average ward politician in the school-board, or the most absurd ignoramus whom the people have set up to preside over the school interest of the county. And if *he* happens to be *she*—that most mysterious, subtle, and unaccountable creature in the republic, a genuine American schoolmistress, God's last, best gift to this new world—she will teach school and bring out the children spite of every botheration of powers ecclesiastical, political or infernal, and will build her paradise in the darkest corner of the national domain.

Now if the American people, outside certain favored centers of popular culture, are not rich or willing enough to build up the complete body of the national school fabric, they are not too poor and perhaps not too stolid to concentrate upon the soul of the matter. *The one gospel for the day is the fit training of the teacher.* There is no country on earth so rich in the finest material for the making of teachers as our own, in the young people that have come up, North and South, since the great war. There are good schools enough on the ground to train them for their work, provided they can be awakened to the duty of the hour. Every superior school, public or private, academical or collegiate, should, at once, establish a department of didactics, with a thorough teacher for the best methods of instruction in charge. In a few years we can flood the land with an army of trained teachers, who will drive out the imbeciles and shams who now victimize so many people, and bring in a new reign of common sense, light, and love in the people's school-room. Good things always come to the front, in God's providence, when most needed. In the hour of the people's dire necessity, the teacher, bearing the magic wand of the new education, appears as the messenger of the most high. Let us not reject the prophet, lest a worse thing come upon us, and darkness cover the land and gross darkness the people.—*N. E. Journal of Ed.*

MATHEMATICAL DEPARTMENT.

EDITOR, DAVID KIRK, JACKSON, MINN.

INTEREST.

It is desirable to have a rule for interest that is universally applicable and that does not involve the use of fractions in its practical application. When the rate per cent. is a complex decimal, as .03½, the use of fractions is unavoidable, but such rates are not common in ordinary transactions.

The following example will illustrate a convenient rule.

Find interest of $724.68 for 2 years, 5 months, 19 days, at 7 per cent.

OPERATION.

$724.68....Principal
889....No. of days in time.

652212
579744
579744

64424052
7....No. expressing rate per cent.

6)450968634
6)75161395 } Divide by 36, using factors.

$ 125.26899....Point off five places.

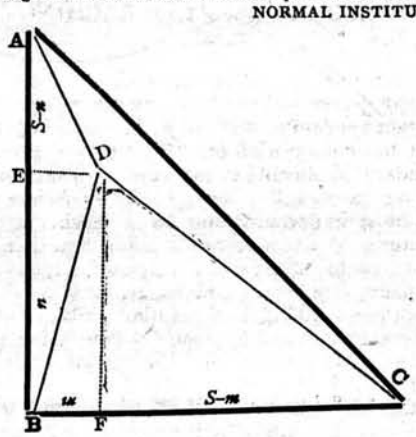
PROBLEM OF THE LADDER.

BY D. H. DAVISON.

At the acute angles of a right-angled isosceles triangle, right sides each 100 feet, stand monuments, respectively 50 and 30 feet high; a monument, also, stands at the right angle, being 40 feet high.

What is the length of a ladder that will reach the top of each without moving its foot?

NORMAL INSTITUTE No. 13.



Let A, B, C, represent the monuments, and D, the foot of the ladder.

Let a, c, represent height of monument at the acute angles.

Let b represent height of monument at the right angle. Let s= a right side of triangle.

Let m=BF, then s—m=FC;

" n=BE, " s—n=AE; Let x= length of ladder. Then $\sqrt{(x^2-a^2)}=AD$; $\sqrt{(x^2-b^2)}=BD$; $\sqrt{(x^2-c^2)}=CD$. $BD^2-m^2=CD^2-(s-m)^2$; and $BD^2-n^2=AD^2-(s-n)^2$. Hence their equals, $x^2-b^2-m^2=x^2-c^2-(s-m)^2$; and $x^2-b^2-n^2=x^2-a^2-(s-n)^2$. Canceling and expanding terms, $-b^2-m^2=-c^2-s^2+2sm-m^2$; and $-b^2-n^2=-a^2-s^2+2sn-n^2$. Transposing and canceling terms, $2sm=s^2+c^2-b^2$; and $2sn=s^2+a^2-b^2$. $m=\frac{s^2+c^2-b^2}{2s}$; and $n=\frac{s^2+a^2-b^2}{2s}$. $m^2=\frac{s^4+2s^2(c^2-b^2)+(c^2-b^2)^2}{4s^2}$; $n^2=\frac{s^4+2s^2(a^2-b^2)+(a^2-b^2)^2}{4s^2}$; $m^2+n^2=BD^2$; hence their equals

$$\frac{s^4+2s^2(c^2-b^2)+(c^2-b^2)^2}{4s^2}+\frac{s^4+2s^2(a^2-b^2)+(a^2-b^2)^2}{4s^2}=x^2-b^2.$$

Transposing and uniting terms,

$$x^2=\frac{2s^4+2s^2(c^2-b^2+a^2-b^2)}{4s^2}+\frac{(c^2-b^2)^2+(a^2-b^2)^2}{4s^2}+b^2.$$

Canceling, uniting, and transposing,

$$x^2=\frac{s^2+c^2+a^2-2b^2}{2}+b^2+\frac{(c^2-b^2)^2+(a^2-b^2)^2}{4s^2}.$$

Condensing, and extracting square root,

$$x=\sqrt{\frac{s^2+c^2+a^2}{2}+\frac{(c^2-b^2)^2+a^2-b^2)^2}{4s^2}}.$$

From this General Formula the length of ladder in any similar example can readily be determined. We can give S any value we please; then, however disproportioned the heights of monuments may be taken, the length of ladder to reach the top of each can readily be found. The exact point of foot of ladder can be determined from the first three steps in solution. Introducing value of s, a, b, c, in the given example, in the General Formula we readily find $x=\frac{1}{2}\sqrt{26930}=82.0518$ feet Ans.

Many of the youths of Madagascar have learned the arts of printing, bookbinding and lithographing, through the encouragement and aid of the London Missionary Society. Several serials are now issued, and contain illustrations produced by native workmen, and sometimes by wood engraving, sent from England.

GENERAL NEWS OF THE WEEK.

The British Government has not participated in the correspondence going on between the continental governments of Europe in relation to alteration of the laws governing rights of asylum of regicides, and persons detected in conspiracies to assasinate rulers. No other government of Europe has been so strenuous hitherto as Great Britain in maintaining the rights of asylum for political refugees of whatever complexion of crime.

Greece has ordered from Austrian manufacturers 35,000 new rifles and 10,000 carbines.

The Porte has appealed to the Great Powers against the invasion of Tunisian territory, as a violation of existing treaties in which they are all more or less concerned. The French have already had several running fights with the natives. The latter are pursuing their customary tactics of leading their enemies into out-of-the-way places, deserts or waterless ways, where European troops suffer much more than they do, and are more easily attacked at a disadvantage to the invaders.

Lord Beaconsfield was buried, in conformity with his own wish, beside his wife. It is understood that Sir Stafford Northcote is to be his successor as leader of the Conservatives.

The flood at Kansas City, due to the high water in the Missouri, enormously augmented by an unprecedented flood in the Kansas river, has wrought terrible destruction of property and rendered more than 7,000 people homeless. More than 1,500 houses in Kansas City and the suburbs have been submerged to a depth that renders them uninhabitable. Many of their former occupants have lost everything. Box-cars, railway depots, tents, and everything that can be used for shelter, has been pressed into service, yet thousands are compelled to sleep in the open air and depend upon charity for food. Many of the houses have been moved to railway tracks, but several have gone down stream, and more will probably follow. The Hannibal Railway bridge, which cost $1,500,000, is in a perilous situation, and may be carried away at any moment. The Chicago & Alton is the only line which can now run into the city on its own tracks, and the water is two feet deep in its yards.

There were 108 failures in the United States and Canada week before last. This is much fewer than the weekly average for the five years preceding September 1, 1878, but rather more than the average for 1879 and 1880.

The Burlington, Cedar Rapids & Northern Railway has sought to have its employes sign a pledge to abstain from the use of spirituous liquors, billiards, and profanity, and to give the company authority to pay their debts, deducting the amount from their pay, but the men decline to do so.

The ice is breaking up in the Straits of Mackinaw, and the channel is already clear from Mackinaw City to Helena.

A meeting in San Francisco has passed resolutions urging the United States Senate to ratify the new Chinese treaty.

At the twelfth annual convention of the American Labor Reform League, in session at New York, the first of this week, resolutions were adopted antagonistic to all existing systems of government, justifying the murder of the Czar of Russia, and asserting the belligerent right of labor in self-defense against capital.

The quarterly report of the Bureau of Statistics shows that 593,703 immigrants came into this country in 1880.

Up to Saturday evening $47,193,850 of the 6 per cent. bonds were received at the Treasury Department to be exchanged for the stamped loan.

At St. Louis the safety of property along the river front has been in great danger of destruction for days past. The water is far above the danger line and still rising.

The revenue cutter Corwin is directed to go on another Arctic cruise; to seize all vessels and arrest all persons detected in violating the revenue laws, particularly such as are selling spirituous liquors and fire-arms to the natives of Alaska, and to confiscate the contraband articles. At the same time it is understood that the Corwin is to coöperate as far as possible with the other efforts made by the Government to discover the missing Jeanette.

Some of the clerks in the office where the Confederate war records are being edited, have received large sums of money for abstracting evidences of the disloyalty of persons who have presented claims against the Government for losses incurred during the war. An investigation has been going on for some time which shows that gross corruption has been carried on here for several years. As a consequence, the records have been removed from the Adjutant General's custody and put in immediate charge of the Secretary of War.

Commissioner Le Duc, of the Agricultural Bureau, has leased 200 acres of land near Charleston, for a period of twenty years, for a tea farm. About 17,500 tea plants will be set out this spring, and the Commissioner hopes that in three years he will have a fine crop.

Four engineering parties started out for Winnipeg Monday morning, May 2d, to explore the mountain passes for the Canadian Pacific Railway. Similar expeditions have been dispatched eastward from Victoria, B. C.

The fanatical peasantry, of Elizabethgrad, Russia, recently sacked a Jewish tabernacle, pillaged the houses of several Jews, killed one man and injured several others.

The St. Petersburg police are amazed to find that two new revolutionary papers are in circulation, purporting to be published within the city.

Bizerta, the most northern town of Africa, and a fortified seaport of Tunis, was captured on Sunday by four French ironclads. It has a population of 10,000, and is defended by two castles.

It is understood that the Czar is disposed to adopt repressive measures of a character so vigorous that Russian history has given no example of them.

A correspondent at St. Petersburg dwells with emphasis upon the gravity of the situation in Russia, and the need of a steady hand at the helm. He says it required nothing less than the recent tragedy to open men's eyes to the fact that the reforms demanded by the people must not be long delayed. If the women of Russia, who are superior to the men in intelligence, should venture to formulate their desires, they would repeat the demands contained in the last proclamation of the famous executive committee. He adds that the distinction between Russian intelligence and the revolutionary party lies not in the end, but in the means, to bring about that end. The people are awakening to a sense of their rights and wrongs, and something must be done quickly. Meanwhile the Emperor lives in retirement, seeing nobody but Prince Varontoff Donohkoff, and the country is virtually without a government.

King Charles, of Roumania, has declined a jeweled crown, and expressed a wish that a crown of steel be made from the Turkish guns captured at Plevna. The coronation ceremony will be confined to the presentation of the crown. The King will not be anointed, as he considers, that being a constitutional monarch, there should be no outward emblem of divine right.

An attempt to evict some tenants at New Ballast, Ireland, failed utterly. There were 500 soldiers and police present, but a mob of 5,000 assembled and stoned the sheriff and his assistants. The police charged upon the mob several times, but the bailiff's life being threatened, he refused to point out the houses of the delinquent tenants. About 200 of the mob were armed with revolvers.

Dervish Pasha is organizing an expedition against the Albanian insurgents at Gusirje.

GENERAL EDUCATIONAL NOTES.

Miss Mary Eastman, in a lecture in Cincinnati on the question "Do Our Schools Educate?" said: "One hundred millions of dollars are spent annually on the public schools, and pupils as well as teachers are more over than under worked, yet what have we really to show for it in the way of thorough education? Reading, for example, is one of the primaries; yet what wretched reading is heard in the schools! Composition is no better. Very few pupils are taught management of the voice, so as to give a natural expression to the feelings and emotions. Note the difference between the teaching in that respect and the natural expression of children at play, where their joys and vexations are communicated to each other. An English lady visiting in this country, and witnessing the parade of school declamation, at an exhibition for her benefit, asked if there was one little girl who could read to her, but only one was found who could read naturally. Very few can impart by paper the pleasant incidents of life; very few indeed by conversation relate what has given themselves pleasure. Conversation is a fine art that should be taught in our schools.

Dr. Crosby, of New York, who has investigated the cases of thousands of itinerant beggars of that city, has never yet found a native American among them. This would seem to speak volumes in favor of our institutions and educational systems.

H. B. Bryant and H. D. Stratton were the founders of forty-eight business colleges. Mr. Stratton died in 1867, Mr. Bryant is now giving his whole attention to the Chicago college, which is now the standard institution.

STATE NEWS.

MICHIGAN.

The discussion concerning the removal of Albion College to Detroit has been quite active.

The next term of Olivet College begins Sept. 16. Important additions have been made to the courses heretofore pursued in the preparatory department, which is now called the normal department.

Prof. W. H. Payne of the State University is to deliver a series of lectures before the Secular Teachers' Department of the Island Park Assembly, next July.

Prest. Durgin of Hillsdale College will make a tour of Great Britain, France, Denmark, and Ireland this summer.

At Jackson, April 15, a Michigan college literary association was formed by delegates representing the literary societies of the University, and Adrian, Albion, Hillsdale, Kalamazoo, and Olivet colleges, and the agricultural college of Lansing. The object is to secure a greater breadth of literary and social culture.

The teachers' association of Newaygo met at White Cloud, April 29 and 30.

Prof. M. J. McMahon of Milwaukee, a graduate of Michigan University, class of '77, has been appointed Professor of English Liturature in the university of Paris, France.

A bill to establish uniformity of text-books is now before the State legislature.

Dr. R. C. Kedzie, of Lansing, has resigned his place as a member of the Michigan State Board of Health.

Miss Cross, daughter of Judge Cross, of Centreville, died Thursday, April 14, at Coldwater. She was a teacher in the public schools of Sturgis, and had come to attend the institute at Coldwater when the illness overtook her, which resulted in her death.

C. A. Perrine, class of '79, who is pursuing a post graduate course, is temporarly in charge of the Dexter schools in place of Sup. Cook, who is sick.

The following high schools admitted students to the University on diploma last year: Ann Arbor, Battle Creek, Coldwater, Corunna, Detroit, East Saginaw, Fenton, Flint, Grand Rapids, Jackson, Monroe, Pontiac, Saginaw, and Ypsilanti.

The following announcement is made: A summer school of French language and literature will be opened at the "Somerville school" during the months of July and August, beginning July 7, and closing August 18. This school is designed for those who desire to become familiar with French conversation, grammar and reading, and with the classical and modern literature of France. To bring this about, the services of one the most experienced teachers of modern languages in this country have been secured, the educational department being in charge of Alfred Henenquin, A. M., instructor in French and German in the university of Michigan, author of a complete series of French text books; formerly head master of the "Victorio Anglo-French college," France; connected with the department of modern languages and literature of the university of Michigan since 1872.

INDIANA.

An informal meeting of school superintendents was held at Indianapolis April 28 and 29. The following were in attendance: State Superintendent Bloss, who presided; Tarbell and Mills, of Indianapolis; Banta, of Valparaiso; Study, of Anderson; Charlton, of Lebanon; Lee, of Greencastle, McRae, of Muncie; Kennedy, of Rockport; Stultz, of Rising Sun; Townsend, of Vincennes; Rippetoe, of Connersville; Truedly, of Union City; Baldwin, of Huntington; Hunter, of Washington, and Graham, of Rushville.

The following report of the number of pupils attending the graded and high schools of the cities represented in the meeting was made:

	Graded Schools.	High Schools
Indianapolis	9,800	525
Evansville	4,800	363
Vincennes	809	125
Muncie	775	90
Greencastle	675	24
Lebanon	440	20
Huntington	500	40
Connersville	575	47
Rockport	475	45
Valparaiso	500	80
Union City	400	30
Rising Sun	450	48
Anderson	600	50

It was ascertained that three methods of securing and recording the punctuality of scholars are used: To record time of coming in in the register of pupils' attendance; to record on a slate near the door; a report at the end of the month. Penalties for tardiness are very seldom enforced.

Quite a discussion ensued on the question should examinations additional to those by county superintendents be provided by law. It was unanimously agreed: (1.) That life certificates by county superintendents are not desirable. (2.) Periodical examinations are a protection to the schools, weeding out indolent teachers. (3.) Legal licenses to do special work would vastly multiply the number of teachers and lower the standard of their attainments, the opinion being expressed in this connection that city superintendents should not be empowered by law to examine teachers; that the present law seldom works hardship, and that all examinations for special work which may be desired can now be made as supplementary to those by the county superintendent. (4.) That all present requirements for obtaining a license should be maintained.

Conflicting estimates were expressed regarding the value of general teachers' meetings, but all agreed that teachers should observe the work in other rooms than their own.

The propriety and conditions of employing married women, the methods of employing and paying teachers, and the work of special teachers were considered.

At the session of the second day Prof. Bloss presided, with Prof. O. C. Charlton, of Lebanon, secretary. There were sixteen present. The subject for discussion was "promotion." Numerous details of methods in use were presented, which were not the same in any two cities. General agreement was reached on the following points: (1.) That semi-annual promotions are desirable in all large schools. (2.) That final examinations alone should never form the basis of promotions. (3.) That all previous examinations and the teacher's opinion of a pupil's ability and energy should be considered in promoting pupils slightly below the required average. (4.) That full monthly examinations in all studies was not desirable. (5.) That daily records of a pupil's recitation were not desirable, but rather injurious. (6.) That the grade of promotion should be fixed after the examination, not before.

No effort was made to secure uniformity. All superintendents prepare part or all of the examination questions, but few only favor oral examinations.

A spirited discussion on the course of study took place. It was agreed there should be a minimum course of study used in all the schools of the State; that the questions of the State Board, except in physiology and history, were not too difficult for use in examinations for promotion to the high schools, and that every high school course should embrace a full review of all the legal branches.

In the course of the discussion this morning, the following figures were given relative to the maximum and minimum salaries of teachers in the different cities:

FIRST YEAR TEACHERS.

	Min.	Max.
Indianapolis	400	550
Greencastle	360	450
Vincennes	450	
Muncie	300	555
Connersville	500	575
Valparaiso	350	
Rushville	350	500
Shelbyville	360	
Lebanon	385	
Rochester	288	

GRADE TEACHERS.

	Min.	Max.
Indianapolis	460	550
Greencastle	360	450
Vincennes	350	500
Rochester	288	324
Union City	300	
Lebanon	340	425
Muncie	300	.555
Connersville	400	475
Valparaiso	350	400
Rushville	450	
Shelbyville	360	450

The Indiana State University at Bloomington has 358 students, of whom 171 are in the preparatory department. Indiana furnishes 161 students. The others come from twelve different States. The examinations will begin May 31. Commencement occurs June 8. There are twenty-eight in the graduating class.

Prof. W. B. Chrisler, editor of *Common School Teacher*, is being urged for the county superintendency of Lawrence county. He has done much for the schools of Indiana in bringing them to a better system, and we hope that the trustees of his county will decide to give him the office which he is so eminently qualified to fill.

The *Indiana School Journal* of April said: Everybody is anxious to hear what the legislature is likely to do, in regard to the school-law, and the *Journal* is disappointed in not being able to give definite information on that subject in this issue. The regular session of the legislature closed without any determinative action on the subject. The special session has begun work, but no bill has yet passed both houses, nor is any one likely to, before the issue of the April *Journal*. The codified school-law has passed the house with several modifications of the old law, the principal of which are the following:

County superintendents must be examined by the State Board of Education. It is generally conceded that this amendment, which was early passed, was the only thing that saved the principal features of the county superintendency system.

Mr. Berryman, of Shelby county, moved to have the bill re-committed, with instructions to the committee to strike out everything pertaining to county superintendency, and "to provide for a county examiner, whose only duty it shall be to examine teachers for license." The resolution elicited a lively discussion, in which the system was vigorously attacked by Messrs. Berryman, Nefl, Cauthorn, Stewart, Fall, Marshall, and others, and had the vote been then taken it is difficult to say what would have been the result.

Mr. Lindsay, of Howard, being friendly to the system, and fearing the result, moved, effectively, that the further consideration of the bill be postponed till Wednesday of the following week.

In the interval thus given, the friends of the law improved the time to the

best advantage. When the matter came up again quite a number of county superintendents were present to assist the local friends, and their number and activity elicited not a little criticism from the enemies of the cause. When the final vote was taken only the following persons voted yes: Messrs. Cabbage, Franklin, Hottell, Cauthorn, Marshall, Neff, Stewart, Smelser, Fuller, Jackson, Miller, Schweitzer, Wheeler, and Weaver. Mr. Berryman was providentially absent on account of sickness.

This, however, did not represent the strength of the opposition to county superintendency. Many who were opposed to the system, opposed this resolution, because, they argued, if the bill was referred back to the committee for this purpose it would never be reported back, and so the present law would be continued in force. Others, who favored going back to the county examiner system, preferred to retain the name "superintendent."

A motion to elect the superintendent by the people failed by only five votes.

A motion, made by Mr. Smelser, of Rush county, to reduce the pay of the superintendent to $3 per day was at first carried, but afterward reconsidered, and after a long debate defeated.

The bill provides that the number of days the county superintendent may spend in visiting shall not be less than three-fourths the number of schools in the county, instead of "as many days," as at present. A strong effort was made to cut off visiting altogether; also to leave it to the commissioners to decide; and at one time, after the "three-fourths" had been agreed to, an attempt was made to reduce to one-half; and a vote of 48 to 33 was secured to this end; but at that stage of the bill a two-thirds vote was necessary in order to suspend a rule, which could not be secured; so the three-fourths was saved as by fire.

Strange to say, one of the bitterest opponents to county superintendency was an old teacher, Mr. Marshall, of Fountain county. He said that he had taught the last ten winters, had been visited ten times by the county superintendent, and had never received ten cents' worth of help from any visit.

If the bill passes as it is, the presidents of school-boards of towns and cities not having a superintendent will have a vote in the election of county superintendent.

The bill provides for a six-months' trial certificate, which is not to be renewed. Regular licenses will be for one, two, and three years; and after two three-year certificates, one for eight years.

The legal number of township institutes is reduced. Two special efforts were made to have teachers paid for attending township institutes, but failed. The election of teachers by the people was with difficulty defeated.

In school meetings married women can vote in the absence of their husbands. Hereafter one of the three school trustees of cities and towns *may* be a woman. Also women may hold any school office—may be county superintendent, which has heretofore been illegal.

The bill reduces the rate of interest on the school fund from 8 to 6 per cent., which will reduce the revenue from this source in the State about $250,000. As the senate has already voted down a bill to make this same reduction, this part may not become a law.

The general feeling is that the bill will pass the Senate *about* as it left the House, except as to the rate of interest.

Many other minor changes have been made, but as nothing is yet settled, further comment is deferred. It is probable that by next month's *Journal* the school legislation will be completed; if so, a full synopsis of all changes and new features in the law will be given.

ILLINOIS.

The local papers of the past week have been literally full of school *items*, but they have all been items of the delinqu ent tax list and are rather dull to the general reader.

It is reported that the supervisors of Stephenson county have voted $140 to help the next institute. Look out for a good report from Supt. Krape this summer.

The first instalment of the class of '81, Sterling, Second Ward, delivered his graduating oration at a recent Friday evening session of his literary society, and received his diploma. There will probably be no graduates next June, but possibly some during next fall term. Principal Bayliss purposes to let individual instruction have its fruits in individual graduation.

Supt. Gastman's office in Decatur High School building now contains a telephone.

Mrs. E. C. Larned, county superintendent of Champaign, has organized a summer school for teachers and advanced pupils. Tuition 50 cents per week.

Regent Peabody of the Illinois Industrial University recently inspected Sycamore schools.

We have received the catalogue and circular of E. L. Wells' private school. It indicates that a large number of students are assembling themselves at Oregon, to get the benefit of Mr. W's. excellent instruction.

We have seen many reports of school attendance greatly diminished by sickness the past winter, but nothing to beat this: Out of forty-six pupils in one school room at Tolono, forty-four have been down with the measles during the past few weeks.

We quote from Galesburg *Republican-Register* an account of the teachers' institute, at Yates City, April 9:

The exercises were opened with singing by the school and prayer by Father Dennis. After this, we listened to a paper on "Education and Health," by Mr. J. D. French. It was well read, and proved to us that he had given the the subject careful study; from it we gained many instructive ideas.

Miss E. A. Smith was next to talk to us on the subject of "Third Reader Grade," but as Miss Smith was absent, the time was spent in discussion upon the same subject.

"Botany," by Miss Jennie Grant, one who is most successful in teaching and interesting young pupils upon said subject, gave us her method of teaching, and presented samples of her pupils' work, which were excellent.

Col. McClanahan next interested us upon the subject of "Grammar."

We then adjourned for dinner, and were warmly welcomed by the people. Exercises began promptly at half past one, with singing by the school, after which the subject of "Grammar" was again brought up.

Mr. Fred Jelliff read a very interesting paper on the "Natural History of Knox County." He is certainly well informed upon the subject.

This was followed by a lengthy article on the "Weak Places in Our Public School System," by Prof. J. M. Crow, in which there were many valuable suggestions and facts, arguing the necessity of Normal Schools, Teachers' Drill Institutes, etc., in order to secure more efficient teachers.

Miss Mathews then presented an excellent paper on "Primary Arithmetic."

The last on the programme was an exercise on "Primary Reading," conducted by Prof. Andrews. Many valuable thoughts were presented, also good methods for teaching.

The pupils of Ottawa high school celebrated Shakspeare's birthday by exercises in each room on the afternoon of Friday, April 22.

Normal News.—Mr. L. W. Applegate was in town recently and sold the Illinois edition of the *Gleaner* to Messrs. James & DeGarmo. They will continue its publication as the Illinois School Journal.

Mr. E. W. Bakewell has been trying to secure the return of the land donated by him to the Board of Education on the establishment of the Normal University. A bill to that effect is before the legislature and will probably pass. The claim is based on the charge that the conditions under which the land was conveyed to the Board have not been fulfilled. One of these conditions is that agricultural chemistry be one of the studies of the course.

President Hewett has been in Springfield, looking after the appropriations. He reports that the prospect is good.

Miss K. Martin has left Normal to attend school at Auburn, Mich.

Mr. Adam Hoffman is in Denver, recruiting his health. His assistant fills his place at Streator in his absence.

Miss Lillian De Garmo has been home for a few days.

John Hardin has been compelled by sickness to return from Ann Arbor.

WISCONSIN.

Prof. C. F. Viebahn, for several years past county superintendent of schools in Manitowoc county has accepted the principalship of the Appleton city schools. He has been one of the best county superintendents in the State, and from his record as a principal will be certain to put his mark on the Appleton schools.

L. D. Harvey, formerly principal of the Sheboygan city schools, is building up quite an extensive law practice in that place. He is, perhaps, the most popular man in the city, was lately elected to a municipal office, being nominated on every ticket, without regard to politics.

Green Bay is having quite a contest in regard to text-books. Several cities in the State have unconsciously overstepped the law, and adopted text-books without due consultation with the State superintendent. Supt. Whitford has been very considerate in such cases, and adjusted the difficulties with great judgment and care.

The Kenosha schools are doing finely under Prof. Leach, who is to remain another year.

THE SCHOOL ROOM.

BE WIDE-AWAKE.

Possibly not every teacher comprehends the full importance of this injunction. But, indeed, to be constantly on the alert mentally, to be always animated and ready for every doubt and difficulty on the part of pupils, is not only of very great value to the little folks, but to the teacher himself. Especially should the teacher have every faculty keenly awake during the times of recitation. The pupils often come into the class with a very imperfect, or indeed a wholly erroneous, idea of the meaning of some part of the lesson. Few children have their minds sufficiently well trained to enable them to master difficult subjects by solitary study. They may con the task faithfully, and yet, because they cannot trace the connecting links between it and lessons which they have previously mastered, or because they miss the full force of some important word, they can only recite it as a parrot might, missing its full meaning altogether. For these, an explanatory word from the teacher, a pointed question, may be all that is needed to make all doubtful matters clear, and render this difficult, dull lesson not only simple, but filled with new and delightful meaning.

To give these needed words in season, however, the teacher should be always on the alert, and be always earnest and animated in manner. He must understand the subject thoroughly, and endeavor to present it in the most bright and pleasing way possible. He should look out for all points of difficulty, and endeavor by pointed test questions to ascertain just how well each pupil understands the subject of the lesson. He should use all the illustration possible to shed light on the dark points, and by his earnestness and

vividness of presentation, hold the attention of the whole class through the time allotted to its work.

The recitation hour should be of the utmost profit to every pupil engaged in it, and to render it thus, the teacher must be eager, interested, wide-awake. Nor is the quality of earnest animation any the less needed outside of the recitations. In the general work of the school-room it is no less essential, serving to obviate mortification and to prevent failure, and assuring that coveted possession of every teacher, an interested school.

BE ON TIME.

Promptness is a very important matter in the management of a school-room. The teacher who would have his school a model of good discipline and accurate work, must begin by cultivating, first in himself and then in the school, the virtue of promptness. He must make a point of always being on hand several minutes before the time for opening school. When a teacher rushes into the school-room while the last stroke of the bell is sounding, panting and flushed, spent with the effort he has made to reach the room before he actually merits a "tardy" mark he must not be astonished if he can hardly keep the school quiet enough to permit him to conduct the opening exercises properly. If he is indifferent to the matter of promptness, he cannot expect them to set him a good example in this respect.

In schools that we have known, a wise rule has been laid down by directors, compelling the teachers to be present in the school-room fifteen minutes before the regular time for opening school. They are thus able not only to insure quietness and decorum on the part of the pupils as they enter the room, but to begin the day's round of duties on the moment, and by the force of example as well as precept, to encourage in the young people the virtue of promptness, a virtue that will prove invaluable to them when they become men and women, and assume their share of the duties of life.

The "on time" principle should be carried out, also, through every detail of the entire day. Every exercise, every recitation, recess, and dismissal, all should have their regular times, and observe them without fail. To make this possible, the all-important clock should of course be in its place, and should be kept well regulated by the almanac. Nothing helps more in the governing of a school than proper attention to the important matter of "time."

A STRANGER IN THE SCHOOL.

A large school of boys and girls were conning over their lessons. The teacher tried hard to keep order, to make all take to their studies, to help those who needed aid, and to make all happy. He opened the doors and windows to give them fresh air; but all would not do. Some felt discouraged with their lessons, some felt sleepy, some felt cross, and everything seemed to drag and linger. By and by the heavy tread of a foot on the door-steps was heard, and without knocking, in walked a hard-faced man, somewhat old in years, but with a firm step. The children at first felt afraid of him, but they soon found that beneath his hard looks there was a bright eye, a pleasant smile and a kind heart. But, instead of sitting down and staring at the school, he sat down by the side of one of the little girls who was trying to get her spelling lesson.

There were tears of discouragement in her eyes.

"Well, what's the matter with our little one?"

"Oh, sir, I can't get my lesson. It's so long, and the words are so hard. I can never learn them!"

"Let us see. How many words are there in one column?"

"Fifteen, sir."

"And how many columns in your lesson?"

"Three, sir."

"Very well. That makes forty-five words to be learned. How many of these are easy, so that you can spell them at once? Count them."

"Twenty-five, sir."

"Then you have twenty which you call hard. Now, take the first one, look at it sharp, see every letter in it, count the letters, see just how the word looks. Now shut your eyes, and see if you can still see just how the words looks. Spell it over softly to yourself. There, now, you spelled it right. Now do so with the next word, and the next, till you have them all."

"Oh, sir, that is very easy. I can get my lesson now."

Thus he went from seat to seat and helped all. The scholars forgot the heat. They all had their lessons; the teacher smiled and praised them, and all were happy. Just as he was leaving, the teacher thanked the stranger, and hoped he would soon call again.

"Oh," said he, "just send for me at any time, and I will come and give any one a lift."

"Pray, sir, by what name shall we ask for you?"

"Mr. Hardstudy, sir, at your service.—*John Todd, in the Household.*

BOTANY FOR COMMON SCHOOLS.

THE GRASSES.

The grasses might be made the subject of a profitable and pleasant object lesson, even in schools where the elements of botany have not been studied. Children are readily interested in familiar things, especially when by means of these they can be led to knowledge of things unfamiliar, or can discover in the well-known objects new beauties, hitherto unknown because unnoticed.

Call their attention first to what you mean when you speak of the "grasses." That you do not refer to the myriad plants that cover the meadow with their thin, fine, closely-growing blades, but to a large family of plants, each differing from the others in some important respect, but yet all having some peculiarities in common. There are 3,800 species of the grasses found in the various parts of the world. They include the sugar cane, Indian corn, broom corn, the bamboo tree of India, the brakes of the Southern swamps, and all the reeds, to say nothing of rice and wheat, oats, barley, and all the other valuable grains. So we may say that the family of the grasses feeds the whole world, and, if they should all die off, there would be little life of any kind left.

If the grasses were given to feed all animals we might expect, doubtless, to find them everywhere. And so you will, or nearly everywhere. To be sure, they will not grow on trees or stones as the mosses and lichens do, but everywhere where a handful of earth can find a resting-place, on mountain tops or in valleys, in the tropics or the polar regions, there the grasses will be found.

The grasses all belong to one great class of plants, a class that is known by three peculiarities: first, the seed in germinating, sends forth but one seed leaf instead of a pair; second, the veins of the leaves run in straight lines from the stalk to the end of the leaf; and, third, the stems are hollow or filled with a soft substance called pith. The stems of the grasses are often filled with pith when they are young, while sometimes they are hollow; all are hollow when they have attained their full growth. Sometimes this old stem is quite hard on the outside, but in most grasses it is brittle and easily broken. All the grasses have tough root stalks—which are called in botany, rhizomes, that creep on or just beneath, the surface of the ground. All of their cylindrical, that is, pipe-like stems, are jointed and have ridges at their joints; at each joint, too, a woody partition extends across the hollow stem. These mark the places from which the leaves grow. The leaves have no proper leaf-stalk, but the base of the leaf grows from a joint of the main stem, and the lower part of the leaf wraps like a sheath around it. On the end of the main stem are the flowers, not single blossoms, but clusters in a head, or *spike*, as it is called. These may not always be noticed, for they are generally enclosed in a green envelope which is folded around them, and quite hides them from view. This is called a *glume*. As many samples of the grass family as can be found should be brought into the class, and the parts pointed out. Heads of wheat or barley should be procured, if possible, their sheathing glumes parted and the parts of the little flower within exposed to view. If a microscope can be had to use, it will be found of much advantage. Then, the separate parts of the flower can be pointed out, it should be shown that though these flowers are not *complete*, that is, possessed of all the parts that a flower ever shows, calyx, corolla, stamen, and pistils—they are *perfect*—that is, having those parts only which are necessary to form the seed, the stamens and pistils. Explain that this use of the words *complete* and *perfect*, is peculiar to botany. Most of the grasses have flowers containing both stamens and pistils; the corn and some other plants like it bear two kinds of imperfect flowers, the one containing only stamens, the other, only pistils.

Open a wheat flower and place it under the microscope for the children to look at. Show them the thread-like stamens balancing broad, dusty anthers on their tops, and the short pistil, from which the long, hairy stigma grows. Tell them how, as the wheat stalk stretches up, through the long, warm spring days, the anthers grow ripe, and, bursting, shower the fine yellow dust with which they are filled, upon the pistil. These little dust particles are caught upon the long hairs of the stigma and one by one are rolled into the opening on the summit of the pistil, whence they make their way down into the germ in the ovary. Once there, the ovary has only to rest while the plant feeds it with nourishing food and drink, and there it grows, until it becomes a perfect seed.

Though many of the grasses are called weeds and are counted as useless, yet these seeds are of value to feed birds and ground squirrels. Those grasses which are called grains furnish the staple food of man, and those

common kinds generally known as grass give many animals, especially those of most use to man, the horse, cow, and sheep, their principal food. The only two members of the grass family that are poisonous are the darnel grass of Europe, and the pigonil grass of South America.

The grasses grow, as has been said, all over the world. But they do not grow with like vigor in all places, and are as various in size as in kind. They grow best in warm or temperate countries. The same grass that in Labrador does not grow an inch above the surface of the gronnd, in the warm valley of the Amazon will grow higher than a man's head. But moisture is needed as well as warmth. In a very dry and hot climate, the grass will be stunted and coarse, while in the river valleys of the tropic countries where there is always plenty of rain and dew as well as sunshine, it is said that some varieties will grow fifty feet high.

Some of the grasses have beautiful leaves, striped in white and various shades of green; these are well known as ornaments of the garden.

With children, a lesson like the above should be used not only to assist in training the power of observation, and awakening a love for the beautiful things in nature, but also to arouse the religious feelings, by turning their attention to the provident care of an allwise Father, who so generously gives food to all, even the most humble, of His creatures.

THE PLANT CHEMICALLY CONSIDERED.

BY T. W. FIELDS, POWERS, INDIANA, ASSOCIATE EDITOR OF "COMMON SCHOOL TEACHER."

Second Paper—What It Feeds On.

We now know that carbonic acid enters into the laboratory of the plant, but as the woody fibre is of itself carbon, we should ascertain what becomes of the oxygen. By simply performing an easy experiment, we can solve the problem and learn a very interesting and useful fact. Take some fresh leaves and place them in a bottle or jar and fill the vessel afterward with fresh, clear water. Then invert this vessel, already so filled, that no air may escape. Set this jar in the strong sunlight for a few hours, and you will see covering the leaves, and risen to the top, small bubbles of oxygen. These bubbles have been derived from the leaves. If you will use a glass tube, instead of a bottle or jar, you may prove that these bubbles are oxygen gas, by witnessing them re-ignite a red-tipped splinter or candle. So we may teach that the plant has the power to decompose or split up the carbonic acid, appropriating the carbon to its own augmentation, and setting free the oxygen to again serve the uses of animal life.

Now, when the plant material or woody fibre is burned the oxygen of the air again unites with the carbon, and again we have carbonic acid gas. When they so exist in the air they become a compound, but when the plant employs the carbon to increase its growth, the oxygen is refused, or liberated, and it then exists in the air in a simple state, until the plant is consumed, when it is again joined to its counterpart—carbon. From this beautiful truth of nature let us teach that nothing is destroyed or wasted. The carbon that is evolved at our fire-places, by our stoves and furnaces, and is set free, finds employment in the vegetable world and becomes the same woody fibre that it was before it was burned. In this is seen one of the many circles around which all matter courses. The oxygen of the air passes through the burning wood and appears as carbonic acid, which, in its turn, is acted upon by the plants, deprived of its carbon, and once more becomes oxygen. Wood to wood, gas to gas, everything returns from whence it came.

Although carbonic acid is very thinly distributed in the air, its entire quantity is very great. As the air blows against the green leaves of the tree, or a flower, or a wheat-stalk, or a lichen, the carbonic acid is imbibed, the carbon is retained, and the oxygen is discharged. Thus the great oak, with its million of leaves, like so many little tongues dangling in the air, and the tiniest blade of grass, hold out their nets and catch the carbonic acid—food for them—as it floats past their home.

Now, it is only necessary to examine a leaf with a microscope to inform you how this food passes into the plant. The under side of the leaves is full of openings, or mouths, called *stomata*, and through these stomata the plant absorbs its food. They may also be found on the upper side, but the epidermis of the leaf is rather thicker than the under side, and from this reason the greater number of pores is found beneath the leaves.

Water is very necessary to the growth of the plant. During dry seasons we notice the withered, parched condition of the leaves, which betokens the dry state of the soil. The amount of moisture evaporated from the surface of the leaves is very great. The plant derives the greater part of its moisture through its roots from the soil, yet quite a large amount is absorbed through the night and during showers through the leaves. A full-grown cabbage will draw from the ground from nineteen to twenty-five ounces of water in a night. This water is very necessary in order to cause a circulation of the materials that have entered into the interior of the plant that they may be carried to the places needed for the growth. This drawing moisture from the soil is something like a lamp, as the oil is burned, more rises from below to fill its place. Ammonia and nitric acid enter the plant both through the leaves and roots. The saline substance, equally necessary to a healthy growth, are taken up by the roots. These are all that is left with the earth when the wood is burned.

The sap which flows through the wood to the leaves returns between the bark and the wood, bringing with it all the materials accumulated for the increase of the body, and depositing them between the bark and the hard, woody trunk. Hence the plant is always increased by accretions to its *outside*. It must not be forgotten that light, warmth and other forces act upon the gases that enter the composition of the plant. We have now determined *how the plant grows* and what it *feeds on*. In future articles we shall endeavor to tell you what it yields us.

MAY, 1881.

PRIMARY DEPARTMENT.

LANGUAGE NUMBER LESSONS.

BY ANNA B. BADLAM.

With the children at the table, their objects arranged in groups of 2 and 3, or 7 and 2, etc., according to the number-cards which have been shown, try such a suggestion as this with them. "Children, let us play this morning that our objects are not balls or counters, etc,, but something we should like very much to have or to buy." Then to the eager children the ordinary objects become to their vivid imagination, soldiers, barrels, trees, pennies, apples, peaches, etc., as the case may be; while from the animation displayed we can have no doubt of the interest taken in the work.

Or having given each child a card bearing a number, direct him to take as many objects as his card tells him. "Now, children, my number shall be larger than yours; I will take as many objects as my card tells me; now you may look and see how many objects you need to add to yours to have as many as I."

Or let the teacher's card bear a smaller number, the children to find how many must be taken away from their group of objects, to leave just as many in their group as in the teacher's.

Or, "To-day, children, your cards shall tell you a number and a little word."

"Take as many objects as your card bids you, and we will play that they are boys or girls, or whatever the word on the card tells you."

"Now, my card tells you to get 2 more, and when you are ready we will have the stories."

If the lesson be Subtraction, "The card tells you to take away 2 objects from those you have.'

The children will take pride in remembering these stories, and giving you the result, to be written on the board for slate-work later in the day. Children like variety, and the greater the variety of material the better results we shall reach. They take delight in what may be called, for convenience, the "pin-ball" lessons.

Let each child provide himself with a bright-colored pin-ball, furnished with common pins, while the teacher has one for her own use, of the size of a tea-plate, furnished with large, black shawl-pins.

With such questions on the board as 3+4=, 4+5=, 9—7=, 10—8=, give the direction, "Children, pull up 3 pins; now 4 more; tell me how many;" the result to be written on the board. Or, "pull up nine pins; now push down 7," the result to be written on the board as before.

After the children understand the signs + and —, a portion of the class may be called out before the board, each child taking a question, and finding the results with the pins, while the remainder of the class is busy doing similar work at their seats, and putting the result on their slates.

A pleasant lesson may be given now and then, for variety, with what are called "palette butterflies," made from coarse brown paper, and painted roughly to imitate the spots and markings. Sketch rapidly on the board daisies, cherries, clover-blossoms, etc.; put stout pins through the butterflies, and let the children direct how they shall fly about, the pins serving to fasten them to the frame-work of the board, wherever the children may wish them to alight.

Perhaps no lesson that can be given with little children is a greater source of pleasure to them than this imaginary walk in the field.—*Primary Teacher.*